

**3<sup>rd</sup> edition Marcellus Shale Gas Environmental Summit**  
**Environmental and operational implications of water use in shale gas extraction**  
*Pittsburgh, Pennsylvania, October 24 to 26, 2011*  
[www.shalegasevent.com](http://www.shalegasevent.com)

**PRE-CONFERENCE WORKSHOPS, 24 October 2011**

**8:30 – 10:30      Workshop A: Managing waste and water through bioremediation**  
(Continental breakfast served during workshop)

Bioremediation is a process in which micro-organisms are utilized to degrade organic contaminants into innocuous end products. The social and environmental responsible waste management related to the development of oil and natural gas resources has positive implications on operational economics. This workshop will offer practical insight into how bioremediation can be used *in-situ* and post-excavation to breakdown organic constituents. In addition, the valence state of inorganic contaminants can be altered reducing TDS and associated operational costs and liabilities. Ensuing discussions will focus upon the conditions needed for optimal efficiency of metabolizing micro-organisms when treating hydraulic fracturing wastewater, and other incidental and process-derived wastes. The benefits associated with the implementation of a bioremediation program, relative to exploration and production operations, will be demonstrated environmentally and economically.

*Jason Rauen, Director, HRL Compliance Solutions, Inc.*

*Maurice Foye, Vice President of Business Operations, HRL Compliance Solutions, Inc.*

**10:40 – 12:40      Workshop B: Addressing regulatory change through permitting procedures**  
(Box lunch served during workshop)

Requirements in the permitting process ultimately determine the environmental impact that a respective well will have on local groundwater sources. Pennsylvania is revisiting its permitting procedures in hopes of achieving a set of best practices governing natural gas wells and in hopes of increasing industry transparency. This workshop will provide an investigative look into Pennsylvania's proposed regulation surrounding permits as well as an educational primer preparing stakeholders to successfully navigate the permitting process.

*Russ Krauss, Vice President of Business Development, Resource Environmental Solutions, LLC*

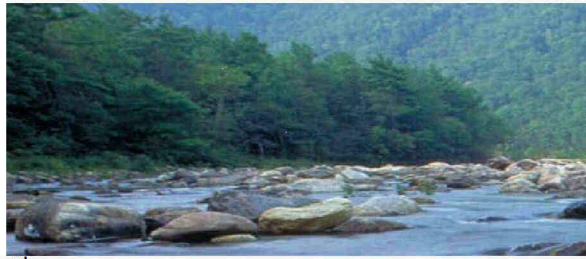
**12:45 – 2:45      Workshop C: Best Management Practices in advanced hydraulic fracturing drilling techniques**

Horizontal drilling and hydraulic fracturing technology is rapidly advancing, stimulating significant growth in shale gas extraction volume and promoting the need to establish benchmarked best management practices for safe drilling procedures. This workshop will investigate measures to optimize project development, well casing and completion, and minimize associated environmental impact.

**3:00 – 5:00      Workshop D: Solving the public relations dilemma: mitigating negative perceptions and educating the consumer**

New research shows that any previously held positive public sentiment on Marcellus Shale development is slowly eroding in traditional and social media circles. However, despite the environmental impacts of high volume hydraulic fracturing, Marcellus Shale and its wealth of reserves is really about people, opportunity, jobs, clean energy, and energy interdependence and security. This workshop will provide tactical techniques to help companies win the Marcellus Shale public relations war.





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**MAIN CONFERENCE DAY 1, 25 October 2011**

**9:00 Chairman's Welcome**

**9:15 Opening Address: Pennsylvania state legislature and regulation of liquids in the shale play**

Pennsylvania is contemplating the implementation of revised regulations pertaining to hydraulic fracturing. This Opening Address offers a critical look at the proposed legislation which will affect the issuance of drilling permits, water management, and environmental compliance. Updates issued during this session will also discuss the competitive nature of the gas drilling industry and its economic benefits for the state.

*Hon. Garth Everett, State Representative, 84<sup>th</sup> Legislative District, Pennsylvania State House of Representatives*

**10:00 Keynote Address: Federal regulations for environmental protection of the Marcellus shale play**

Shale formations have the potential to more than double the world's gas reserves. However, negative public opinions surrounding the industry are driving ever more stringent environmental regulation. This session will provide updates on how the future of shale gas extraction in America is now being determined and whether regulatory parameters will be defined at the state or at the federal level.

*Shawn Garvin, Regional Administrator, Region 3, Environmental Protection Agency*

**10:45 Networking & Coffee**

**11:30 Panel Discussion: State regulation in Appalachia**

The Marcellus play reaches across several key states in the Appalachian region. This interactive panel discussion unites industry stakeholders from a cross section of Marcellus region states to compare and contrast drilling regulation, permitting procedures, and environmental compliance in the Marcellus play region. Updates from West Virginia, New York, Maryland, and Ohio will be debated during the ensuing high-level discussion.

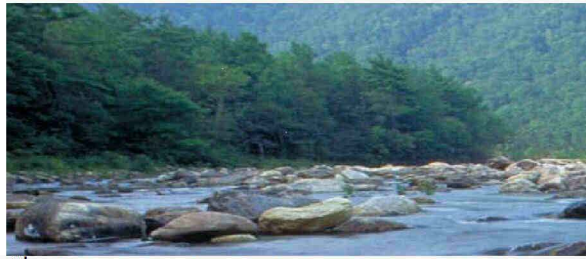
- *Tom Tugend, Deputy Chief, Oil & Gas Program, Department of Natural Resources, Ohio*
- *Dawn Stoltzfus, Director of Communications, Maryland Department of the Environment*
- *Charlie Burd, President, Independent Oil & Gas Association of West Virginia*
- *James Tierney, Assistant Commissioner, Water Resources, Department of Environmental Conservation, New York*

**12:15 Value-added services for local community outreach: Case Study**

Studies have shown that local communities are generally supportive of extraction operations in their region if revenues are returned to areas experiencing growth. Methods designed to attribute economic benefits back to local populations including wealth creation from leasing activity, business growth, and tax impacts enable local partnerships and create transparency in the development of land lease agreements. This session will offer a tactical look at new ways to incorporate environmental stewardship into daily operations, provide opportunities for natural gas consumption from local shale gas wells, and mitigate negative perceptions through enhanced transparency and safe water management.

*George Stark, Director of External Affairs, Cabot Oil & Gas*

**1:00 Lunch**



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#### **2:15 Community Water Safety**

Water safety concerns every aspect of the shale gas extraction life cycle and environmental advocates are one of the leading drivers of regulatory policy surrounding the use of water. This session offers a critical look into establishing best practices for monitoring streams, rivers, groundwater and preventing third party damage based upon environmental impact studies now being implemented on the ground. Ensuing discussions will investigate how to engage local communities and better understand the infrastructural needs of Appalachian development.

*Erika Staaf, Clean Water Specialist, Penn Environment*

#### **3:00 Case study: Water quality management**

Latest industry trends now lend towards maximizing the reuse of water in order to minimize the disposal of wastewater. This session offers an investigative look at current and emerging technologies and their practical application in achieving best practices for water quality management.

*James Eddy Grey, Senior Vice President & Chief Operating Officer, Triana Energy*

#### **3:45 Networking & Coffee**

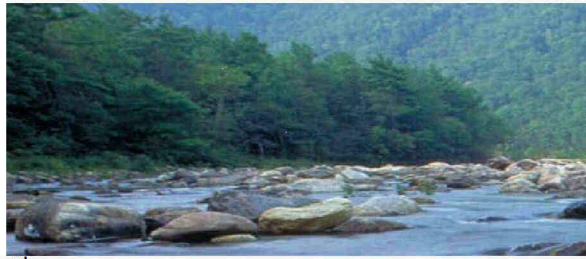
#### **4:15 Realities of the New York state drilling moratorium**

Just last year, the New York State Senate approved a minimal nine-month delay in issuing permits for shale gas drilling. This session will provide an investigative look into the cumulative effects of operating hundreds of wells across the state as well as the potential guidelines that will be proposed for the issuance of drilling permits for high volume hydraulic fracturing in low permeability foundations.

*James Tierney, Assistant Commissioner, Water Resources, Department of Environmental Conservation, New York*

#### **5:00 Close of Day 1**





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**MAIN CONFERENCE DAY 2, 26 October 2011**

**9:00 Access to local water resources**

Water is an essential component to any energy resource development. In the Marcellus play, where is the water coming from? This session offers practical insight into procedures that operators will need to have in place to maximize their access to water supplies. The Susquehanna River Basin will also deliver updates on how much water is being approved for withdrawal, the specifics of the approval process, compliance, and enforcement.

*Paul Swartz, Executive Director, Susquehanna River Basin Commission*

**9:45 Stray gas and the risks of groundwater contamination**

Methane trapped in shallow rock between the surface and the Marcellus shale can escape into drinking water aquifers. This session will evaluate the potential impacts associated with gas-well drilling and fracturing on groundwater, discuss the outcome of recent studies on methane migration, and offer insight into how to combat the risks of contamination through the implementation of casing and cementing methods which conform to newly updated regulations.

*Ben Grunewald, Associate Director, Groundwater Protection Council, Oklahoma*

**10:30 Networking & Coffee**

**11:15 Assessing the best mix for hydraulic fracturing fluids**

The industry faces new challenges as states gear up their requirements on disclosure of chemicals used in hydrofracking fluids. Historically guarded as trade secrets, the chemical composition of these fluids as used by each respective operator may soon become public information. This session discusses the behavior of spike compounds and others diluents used in fracturing fluid matrices while taking a critical look at how to minimize the risks of volatile components.

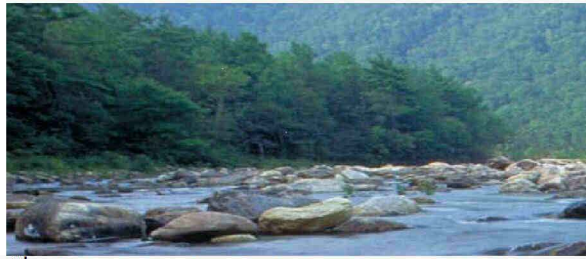
*John Duda, Director, Strategic Center for Natural Gas, National Energy Technology Laboratory*

**12:00 pm Lunch**

**1:00 Wet gas separation**

Wet gas, more prevalent in western parts of the Marcellus play, is gas containing long-chain hydrocarbons known as natural gas liquids. Because wet gas contains other liquid compounds, such as propane and butane, it requires separation prior to being used as a consumable energy source. This session offers practical insight into the process of cleansing and drying including a look at the performance of technologies for the separation of gas and water into different streams, electrostatic precipitation, and the use of emulsion-breaking chemicals in hydraulic fracturing operations.

*Ken Fleeman, Manager of Engineering, Abarta Oil & Gas*



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#### **1:45 Alternatives to public water treatment: water recycling**

Water recycling is important because demand for treating wastewater from shale gas extraction is currently at about 9 million gallons per day in the state of Pennsylvania alone. In conjunction with proposed 2011 water quality discharge standards for the Marcellus region, water recycling efforts, as a means to eliminate flowback water disposal, is expected to play a significant role in assisting operators to achieve environmental compliance. This session discusses how best to incorporate water recycling into the operator's business model.

*Patrick McKinney, Chief Operating Officer, Rex Energy Corporation*

#### **2:30 Prevention and clean-up: techniques in accident remediation**

Accident remediation deals with the removal of pollution or contaminants from environmental media such as soil, groundwater, sediment, or surface water. A series of 2 presentations will provide a critical look at how to minimize contamination and implement efficient remediation procedures following a natural gas operational incident with particular attention paid to remediation standards, site assessment, and the main impacts of remediation itself which include noise, dust, odor and incremental health risk to local populations.

*Ron Borsellino, Director, Hazardous Site Clean-up Division, Region 3, Environmental Protection Agency  
Senior Representative, Chevron*

#### **3:45 Networking & Coffee**

#### **4:15 Long term planning for shale gas extraction**

A shifting regulatory climate influenced by ongoing environmental impact assessments is a challenging obstacle to long-term planning for shale gas extraction. This session provides an in-depth look at strategies for planning in a state and federally regulated climate with particular focus on the role of natural gas in powering the national grid and promoting North American energy security.

*Michael Worden, Petroleum Engineer, Bureau of Land Management*

#### **5:00 Close of Day 2**